

CLAIMS

1. A plate heat exchanger comprising:
a pair of end plates extending parallel to each other; and
a plurality of plates sandwiched between said pair of end plates and
5 having two passageways defined therein that are not in fluid communication with each other;
wherein two fluids flow through the two passageways in a countercurrent fashion.
- 10 2. The plate heat exchanger according to claim 1, wherein said plurality of plates comprise a plurality of first passageway plates each having a first passageway defined therein, a plurality of second passageway plates each having a second passageway defined therein, and a plurality of partition plates, said plurality of first passageway plates and said plurality of second passageway plates being piled up
15 alternately with one of said plurality of partition plates interposed between neighboring first and second passageway plates, and wherein said first and second passageways are aligned with each other, and first and second fluids flow through said first and second passageways, respectively, in the countercurrent fashion.
- 20 3. The plate heat exchanger according to claim 2, wherein said partition plates are thicker than said first or second passageway plates.
4. The plate heat exchanger according to claim 1, wherein each of said plurality of plates comprises a passageway plate having first and second
25 passageways defined therein that adjoin and extend parallel to each other, and wherein first and second fluids flow through said first and second passageways, respectively, in the countercurrent fashion.

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5. The plate heat exchanger according to any one of claims 2 to 4, wherein said first and second passageway plates have an identical shape.
6. The plate heat exchanger according to any one of claims 2 to 5, wherein said plurality of plates are shaped by pressing and piled up so that punching directions thereof during pressing coincide.
7. The plate heat exchanger according to any one of claims 2 to 6, wherein a partition is provided in at least one of said first and second passageways to divide said at least one passageway into two in a widthwise direction thereof.
8. The plate heat exchanger according to any one of claims 2 to 7, wherein said first and second passageways have generally U-shaped turning portions.
9. The plate heat exchanger according to claim 8, wherein at least one of said first and second passageways has substantially a same width in a direction of length thereof.
10. The plate heat exchanger according to claim 8 or 9, wherein each of said plurality of passageway plates has a through-hole defined therein between adjoining fluid paths of each of said first and second passageways, and wherein said through-holes of said plurality of passageway plates communicate with one another.
11. The plate heat exchanger according to any one of claims 2 to 10, wherein said plurality of passageway plates are made of resinous material.
12. A method of making a plate heat exchanger having a plurality of plates sandwiched between a pair of end plates, the plurality of plates having two

passageways defined therein that are not in fluid communication with each other, said method comprising the steps of:

shaping the plurality of plates by pressing;

performing plating on opposite surfaces of at least some of the plurality

5 of plates;

piling up the plurality of plates so that punching directions thereof during pressing coincide; and

heating the plurality of plates under a condition in which the plurality of plates are held in close contact with one another.

10 13. A method of making a plate heat exchanger having a plurality of plates sandwiched between a pair of end plates, the plurality of plates having two passageways defined therein that are not in fluid communication with each other, said method comprising the steps of:

15 shaping the plurality of plates by pressing;

coating with paste solder those surfaces of the plurality of plates that are positioned on an upstream side thereof in a punching direction during pressing;

piling up the plurality of plates so that the punching directions thereof during pressing coincide; and

20 heating the plurality of plates under a condition in which the plurality of plates are held in close contact with one another.

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